**Practice Quizzes for Honors Biology Unit 2**

**Chapter 5: The Study of Life**

1. Differentiate between:
   1. Gametes and Somatic Cells
   2. Mitosis and Meiosis
   3. Haploid and Diploid
   4. Cytokinesis in Animals vs Plants
   5. Homologous pairs and sister chromatids
   6. Meiosis I and II
   7. Spermatogenesis and Oogenesis
2. Name the stages of the cell cycle and the key events that occur in each.
3. How is the cell cycle normally regulated?
4. Why is apoptosis an important process?
5. How is all the DNA in a nucleus organized in order to do mitosis?
6. During which stage of mitosis….
   1. Chromosomes are in the middle
   2. Nuclear membrane reforms
   3. Sister chromatids separate
   4. Chromosomes form
   5. Two cells form
7. What are alleles?
8. How do each of the following contribute to genetic variation?
   1. Crossing-over
   2. Independent Assortment
   3. Fertilization
9. During which stage of meiosis…..(remember to indicate I or II)
   1. Sister chromatids separate
   2. Homologous pairs in the middle
   3. A total of 2 cells form
   4. Chromosomes in the middle
   5. Homologous pairs separate
   6. A total of 4 cells form
   7. Chromosomes reform for the second time
   8. Nuclear envelope breaks down for the first time
10. Where does meiosis occur? Mitosis?
11. Do the practice problems at the end of Chapter 23, which will help prepare you for the quiz and/or exam.

**Chapter 23: Patterns of Inheritance**

1. Who is the father of genetics?
2. Mendel developed three laws: Dominance, Segregation and Independent Assortment. Which of these three says that:
   1. When you have a genotype of AaBb that you can form gametes that are: AB, Ab, aB, ab
   2. And which law says that you will never have a gamete that is Aa
   3. And which law says that this individual is artsy and blue? (just made those up because they started with an a and a b)
3. Differentiate between:
   1. Phenotypes and genotypes
   2. Homozygote and heterozygote
   3. Dominant and recessive traits
4. Why would you need to do a testcross and who would you need to do it with?
5. If a woman has brown eyes and has a blue eyed child:
   1. What is the child’s genotype?
   2. Father’s?
   3. The mother’s?
6. What are the odds of two people having a straight hairlined child if one has a Widow’s peak and one has a straight hairline?
7. If a man is color blind and marries a woman who is a carrier:
   1. What are the odds that they will have a colorblind girl?
   2. Carrier girl?
   3. Colorblind boy?
8. Beyond the simple….if a black bunny copulates with a white bunny and…
   1. And all their offspring have gray hairs then it is:
   2. And if all their offspring have both black hairs and white hairs then it is:
9. If a type AB person has a child with a type O person what are the possible genotypes of their children?
10. Differentiate between multiple alleles and polygenic inheritance.
11. How can the environment influence the phenotype?
12. How do linked genes affect the Law of Independent Assortment?
13. Do the practice problems at the end of Chapter 23, which will help prepare you for the quiz and/or exam.

**Chapter 26: Genetic Counseling**

1. What is a syndrome?
2. What is a karyotype and how is it made?
3. Concerning changes in chromosome numbers:
   1. What goes wrong to cause a person to have too many or too few chromosomes?
   2. What is the most common autosomal trisomy?
   3. In Sex Chromosomes: name the disorder and describe the main symptoms
      1. Single X
      2. XXY
      3. XXX
      4. XYY
4. Concerning changes in chromosome structure: name the issue
   1. Crossing over between nonhomologous pairs
   2. Portion of a chromosome is lost or extra added in
   3. A segment of a chromosome is flipped
5. Concerning pedigrees:
   1. Which one would have a trait skip a generation?
   2. Which one would have a trait skip a generation and show up primarily in males?
   3. Which one would not have a trait pop up again if it were not in the parents?
6. Name and describe a genetic disorder for:
   1. Autosomal dominance
   2. Autosomal recessive
   3. X-Linked
7. What are all the things you can test to determine if a person will have a genetic disorder?
8. What is genomics?
9. What did the Human Genome Project do?
10. What is the HapMap project?
11. What do you call the study of proteins, their structure and interactions?
12. If the human genome is three dimensional it contains three parts. One part that codes for proteins, another that interrupts and separates genes and the last part are the \_\_\_\_\_\_\_\_\_ the surround the DNA and probably helps regulate it.
13. What is gene therapy and what are the two types?
14. Do the practice problems at the end of Chapter 26, which will help prepare you for the quiz and/or exam.